ABSTRACT

An ESCAP type polymer which has a controlled structure wherein the groups protecting phenolic hydroxyl groups have been selectively or partly eliminated or decomposed with an acid and no carboxylic acid residues are contained and which is a narrow-disperse polymer and is suitable for use as a material for a chemical amplification type resist for excimer lasers which has excellent resolution. The process is characterized by subjecting either an alkenylphenol in which the phenolic hydroxyl group has been protected or the alkenylphenol and a vinylaromatic compound to anionic polymerization together with a (meth)acrylic ester to give a block copolymer and eliminating only a given proportion of the groups protecting the phenolic hydroxyl groups from the block copolymer with an acid reagent. Thus, an alkenylphenol copolymer is synthesized which has a ratio of the weight-average molecular weight (Mw) to the number-average molecular weight (Mn), (Mw/Mn), of 1.00 to 1.50 and has no carboxylic acid residues.